

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference A41715J	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2005/005449	International filing date (<i>day/month/year</i>) 17 March 2005 (17.03.2005)	Priority date (<i>day/month/year</i>) 19 March 2004 (19.03.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant FUJI PHOTO FILM CO., LTD.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 19 September 2006 (19.09.2006)
	Authorized officer Yoshiko Kuwahara e-mail: pt07@wipo.int

PATENT COÖPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 17 MAY 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/005449

International filing date (day/month/year)
17.03.2005

Priority date (day/month/year)
19.03.2004

International Patent Classification (IPC) or both national classification and IPC
C09K19/32, C09K19/40, C09K19/18, C09K19/34, C09K19/30

Applicant
FUJI PHOTO FILM CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the International application
- ☐ Box No. VIII Certain observations on the International application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/005449

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/005449

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	1-18
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: JP 07 306317 A cited in the application

2. Novelty (Article 33(2) PCT) , Inventive Step (Article 33(3) PCT)

The present application meets the criteria of *Article 33(1) PCT*, because the subject-matter of **claims 1-18** is new in the sense of *Article 33(2) PCT* and involves an inventive step in the sense of *Article 33(3) PCT*.

2.1.

The document **D1**, which is regarded as being the closest prior art to the subject-matter of **claim 1**, discloses (abstract; formulae I-III) an optically anisotropic material comprising a discotic triphenylene derivative having optionally substituted phenylcarbonyl groups.

The subject-matter of **claim 1** differs from document **D1** in that the discotic compound has a cyclopropylcarbonyl group.

The subject-matter of **claim 1** is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as providing an alternative optically anisotropic material comprising a discotic compound having acceptable optical and liquid crystalline properties, in particular providing optically anisotropic layers with small wavelength dispersion and large refractive index, contributing to reduction in colour tint change, enlargement of the viewing angle and thinning of liquid crystal devices.

The solution to this problem proposed in **claim 1** of the present application is considered as involving an inventive step (Article 33(3) PCT), since it is neither disclosed nor suggested in **D1**, or in any of the documents of the international search report, that the presence of at least one cyclopropylcarbonyl group in an optically anisotropic material comprising a discotic compound can solve the above problem.

The subject-matter of **claim 1** is therefore inventive (Article 33(3) PCT).

2.2. Other independent claims

The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding **independent claims 11, 12, 13 and 15**, which therefore is also considered new and inventive.

2.3. Other dependent claims

Claims 2-9 are dependent on claim 1 and, as such, also meet the requirements of the PCT with respect to novelty and inventive step.

Similarly, **claims 16-18** are dependent on claim 15 and, as such, also meet the requirements of the PCT with respect to novelty and inventive step.

Claim 14 should be dependent on claim 13 and, as such, also meets the requirements of the PCT with respect to novelty and inventive step.